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Applicant(s): Yasushi KOHNO et al.

Docket No.

121056-009

Serial No.

09/837,020

Filing Date

April 18, 2001

Examiner

Andrea Valenti

Group Art Unit

3643

Invention:

**METHOD OF PREVENTING DEFECTIVE GERMINATION OR GROWTH OF PLANT**I hereby certify that this **Reply Brief and Exhibits "A" and "B" (original and two copies each)**

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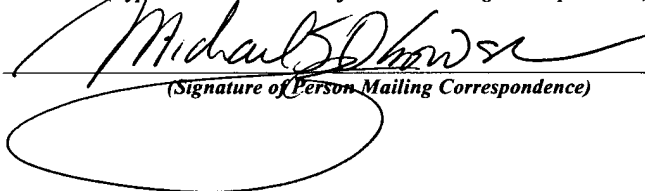
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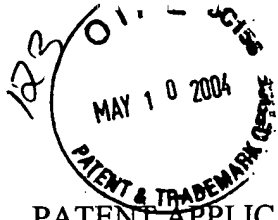
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AF/ 3643

PATENT APPLICATION

*IN THE UNITED STATES PATENT AND TRADEMARK OFFICE*

*Group*

*Art Unit:* 3643

*Attorney*

*Docket No.:* 121056-009

*Applicant:* Yasushi KOHNO et al.

*Invention:* METHOD OF PREVENTING  
DEFECTIVE GERMINATION  
OR GROWTH OF PLANT

*Serial No:* 09/837,020

*Filed:* April 18, 2001

*Examiner:* Andrea Valenti

Certificate Under 37 CFR 1.8(a)

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on May 7, 2004

  
Michael S. Gzybowski

REPLY BRIEF

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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**GROUP 3600**

Sir:

In response to the Examiner's Answer mailed March 12, 2004, appellants submit the following reply.

NEW ISSUES RAISED IN EXAMINER'S ANSWER

1. In the paragraph bridging pages 3 and 4 of the Examiner's Answer the Examiner states that: "Skarpass teaches that **prolonged** exposure to cold temperatures not merely provides the standard yield but increases the yield by enhancing germination." (emphasis added by Examiner).

2. In the paragraph bridging pages 4 and 5 of the Examiner's Answer the Examiner states that: "...it is irrelevant the specific plant that Skarpass is discussing."

3. In the paragraph bridging pages 5 and 6 of the Examiner's Answer the Examiner states that: "The seed of Skarpass and the seeds of Kohno are merely alternative equivalent seeds."

4. In the second full paragraph on page 6 of the Examiner's Answer the Examiner states that: "Thus storage seed dormancy and germination are inherent concerns of Kohno thus providing the motivation and suggestion for the combination."

5. In the paragraph bridging pages 7 and 8 of the Examiner's Answer the Examiner states that "[t]he metal ion, also taught by Asano (Asano Col. 1 line 35-45), is a water proofing compound that would prevent the palletized seed from dissolving prematurely in the preservation solution."

#### RESPONSE TO NEW ISSUES RAISED BY THE EXAMINER

A. In the paragraph bridging pages 3 and 4 of the Examiner's Answer the Examiner states that: "Skarpass teaches that **prolonged** exposure to cold temperatures not merely provides the standard yield but increases the yield by enhancing germination." (emphasis added by Examiner).

This statement by the Examiner is an inaccurate statement of what Skarpass actually states and could mislead the members of the Board of Patent Appeals and Interferences.

What Skarpass actually states is: “A cold period is necessary to break seed dormancy, and prolonged cold treatment *and mechanical wear of the pericarp* enhances germination.” (Emphasis added).

Contrary to what the Examiner urges, Skarpass teaches that it is not solely the prolonged cold treatment (i.e., per the Examiner “**prolonged** exposure to cold temperatures”) that enhances germination but rather cold treatment *and mechanical wear of the pericarp* that enhances germination.

As defined by Webster’s online dictionary ([www.webster.com](http://www.webster.com)) a “pericarp” is “the ripened and variously modified walls of a plant ovary.” As further taught by Webster’s online dictionary, a pericarp is formed of an exocarp, mesocarp and endocarp, all of which surround the actual “seed” as shown in the attached illustration (Exhibit “A”) provided by Webster’s online dictionary in reference to “endocarp.

As noted in Appellants’ Brief on Appeal a “nutlet” is: “1 a : a small nut b : a small fruit similar to a nut” A “nut” is “1 a (1) : a hard-shelled dry fruit or seed with a separable rind or shell and interior kernel.”

As can be seen this definition of a “nutlet” together with the definition of a pericarp “confirms” that Skarpass teaches that the mechanical wearing of the structural layers surrounding the seed, i.e. the separable rind or shell, contributes to enhancing germination.

Skarpass further teaches that:

Nutlets imbibed in salt water after cold treatment (2 degrees C in 6 weeks), did not germinate, wherein for nutlets given the same cold treatment before imbibition, the germination rate was >0.5.

Thus Skarpass teaches that improvements in germination are achieved only if a cold treatment is followed by imbibition, i.e. soaking the nutlets.

This teaching does not lead to the conclusion that Skarpass teaches “**prolonged** exposure to cold temperatures not merely provides the standard yield but increases the yield by enhancing germination” as the Examiner states.

B. In the paragraph bridging pages 4 and 5 of the Examiner’s Answer the Examiner states that: “...it is irrelevant the specific plant that Skarpass is discussing.”

The teachings of Skarpass are limited to the Oyster plant (*Mertensia maritime* (L.) SF. Gray) which is a herbaceous perennial non-clonal shingle beach species.

The entire reference to Skarpass is a study of how the Oyster plant reproduces and disperses which involves the nutlets to float “for a very long time (several months)” in 3% salt water.

Seed can be classified as “pulses” which include edible seeds of legumes that are harvested and dried, “seeds” that are the embryos and food store of angiosperms (flowering plants) and gymnosperms (surface seeds not in an ovary, such as conifers), “kernels” which are the inner softer part of nuts or seeds, and “nuts” which include a dried fruit with a hard exterior surrounding one, or occasionally more seeds. (See Exhibit “B” attached hereto)

Skarpass teaches nutlets of an Oyster plant. Kohno et al. teaches radish seeds as an example.

Neither the nutlet/seeds of Skarpass and Kohno et al. nor the plants of these seeds have been established to be related sufficiently for the Examiner to state that it is “irrelevant” as to the specific plant that Skarpass discusses. Such a manner is very relevant to determine if the

teachings of these references are analogous and to determine if the teachings of Skarpass are applicable to the teachings of Kohno et al. Appellants submit they are not.

C. In the paragraph bridging pages 5 and 6 of the Examiner's Answer the Examiner states that: "The seed of Skarpass and the seeds of Kohno are merely alternative equivalent seeds."

The proper definition of an "equivalent" under patent law involves elements that have similar functions, properties or characteristics which allow the equivalent elements to be interchanged with one another. Equivalency has to be based upon a teaching in the prior art or what is known to those skilled in the art.

In the present situation, there is no basis in the record for the Examiner to take the position that "[t]he seed of Skarpass and the seeds of Kohno are merely alternative equivalent seeds." Skarpass teaches nutlets of Oyster plants. Kohno et al. teaches a radish seed. Based upon the teachings of Exhibit "B" attached hereto and the lack of any contrary teaching in the record, appellants submit that the seeds of Skarpass and Kohno et al. are not equivalent. Note, a "nut" such as a walnut is not equivalent to a "seed" such as a poppy seed as taught by Exhibit "B."

Appellants point out that at the bottom of page 6 of the Examiner's Answer the Examiner specifically relies upon U.S. Patent No. 6,331,504 B1 as teaching "that germination is temperature and **seed specific**." (emphasis added) That is, germination varies from seed to seed for different types of seeds so they are not equivalent.

The Examiner cannot on one hand take the position that all seeds are equivalent when it comes to cold storage and germination and on the other hand take the position that germination is seed specific.

The prior art cited by the Examiner clearly rebuts the Examiner's position.

D. In the second full paragraph on page 6 of the Examiner's Answer the Examiner states that: "Thus storage seed dormancy and germination are inherent concerns of Kohno thus providing the motivation and suggestion for the combination."

In the proceeding sentence the Examiner states that: "An objective of Kohno is to prevent the reduction in yield and handling."

Again the Examiner seems to be making an inaccurate statement of what the prior art actually states and could mislead the members of the Board of Patent Appeals and Interferences.

Kohno et al. actually states that:

In light of the above-mentioned disadvantages of conventional techniques, an object of the invention is to *provide a method for storing gel-coated seeds easily* without causing reductions in yield and handling properties." (Emphasis added)

The primary goal of Kohno et al. is to store gel-coated seeds. In order to be useful the method cannot degrade germination. Kohno et al. confirms this by conducting tests which establish that the stored seed exhibit an "equal rate of germination" as compared to non-stored seeds.

Kohno et al. does not provide motivation for the combination proposed by the Examiner.

E. In the paragraph bridging pages 7 and 8 of the Examiner's Answer the Examiner states that "[t]he metal ion, also taught by Asano (Asano Col. 1 line 35-45), is a water proofing compound that would prevent the palletized seed from dissolving prematurely in the preservation solution."

Again the Examiner has failed to accurately note what the prior art actually teaches.

At column 1, lines 29-40 Asano teaches:

However, when the soil is over-moist after a rainfall or due to poor drainage, for instance, the coating layer containing a tacky binder melts under the influence of excessive moisture and encapsulates the seed to prevent the access of oxygen which is essential to the energy metabolism during germination and consequently precludes the normal course of germination.

In order to resolve the above-mentioned problems, there has been proposed a technique which comprises incorporating a water-repellent or water-proofing compound such as oil, fat, cellulose ester, vinyl resin, urethane resin, aluminum acetate, aluminum formate, a zirconium compound, or a higher fatty acid, inclusive of a metal salt thereof. (underlying added)

Asano never states that that "[t]he metal ion, also taught by Asano....is a water proofing compound that would prevent the palletized seed from dissolving prematurely in the preservation solution." as the Examiner alleges.

When the palletized seed is preserved in a solution containing metal ions at low temperatures, the coating will of course dissolve in the solution during preservation absent some other water-repellent or water-proofing compound.

The technology described in the above-cited portion of Asano relates to securing access of oxygen to the seed for the purpose of germination and therefore has nothing to do with the dissolution of the coating in the solution.

Consequently, it is established that if the teachings of Kohno was combined with those of Asano as the Examiner purports to be obvious, that is, if the pelletized seed of Asano were

preserved in the solution containing metal ions at low temperature as taught by Kohno, the coating would dissolve in the preservation.

Therefore, on a technical and factual basis there is no motivation for combining the teachings of Kohno and Asano according to the Examiner's position.

### CONCLUSION

For the reasons further advanced above, appellants respectfully contend that the rejection of claims 1-6 and 13 as being obvious under 35 U.S.C. §103(a) over Kohno et al. in view of Skarpaas is improper because the examiner has not met the burden of establishing a *prima facie* case of obviousness.

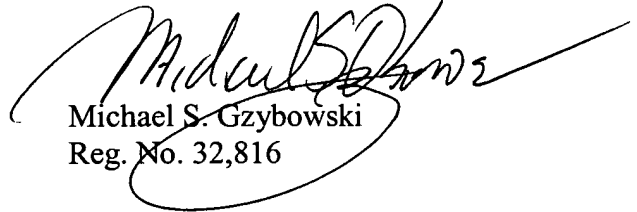
Moreover, for the reasons further advanced above, appellants respectfully contend that the rejection of claims 7-12 as being obvious under 35 U.S.C. §103(a) over Kohno et al. "as applied to claims 1, in view of Asano is improper because the examiner has not met the burden of establishing a *prima facie* case of obviousness.

Reversal of each of the rejections on appeal is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including

extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

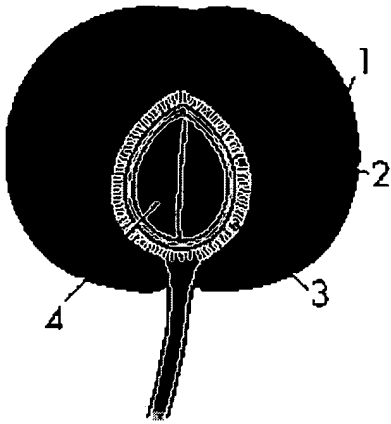
Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael S. Gzybowski", is written over a circular stamp. The stamp contains the text "Michael S. Gzybowski" and "Reg. No. 32,816".

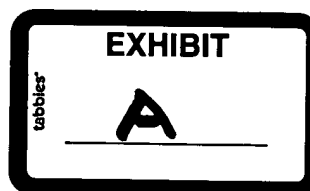
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111337.1



endocarp (cross section of a cherry): 1 exocarp, 2 mesocarp, 3 endocarp, 4 seed; 1, 2, and 3 together form the pericarp





## Core Classification version 00/1



### Classification policy and listing

[EUROCODE 2 HOME](#)
[DOCUMENTATION](#)
[MAIN GROUPS](#)
[FEEDBACK FORM](#)

## Main Group 7: Pulses, seeds, kernels, nuts and products

### Classification policies

[Group 7 classification](#)

- Inclusions:**
1. Pulses, i.e. edible seeds of legumes harvested ripe and dried
  2. Seeds, i.e. the embryos and their food store of angiosperms (flowering plants) and gymnosperms (surface seeds not in an ovary, e.g. conifers)
  3. Kernels, i.e. inner, softer part of nuts or seeds
  4. Nuts, i.e. a dry fruit with a hard exterior surrounding one, or occasionally more, seed
  5. A food product whose predominant constituent is pulses, seeds, kernels or nuts
  6. A recipe dish whose main ingredient is considered to be pulses, seeds, kernels or nuts
- Exclusions:**
1. Pods of pulses (for example mangetout and runner beans), see Pod vegetables.
  2. Unripe pulses (for example peas and broad beans), see Immature pulses and seed vegetables.
  3. Sprouted pulses (for example beansprouts), see Sprouted seed vegetables.
  4. Fruits, i.e. the part of a plant developed from the ovary and holding the seed. As well as categories assigned to the Fruits and fruit products main group.
  5. Oils produced from pulses, seeds, kernels or nuts
  6. A food product produced wholly or partially from pulses, seeds, kernels or nuts but used as a substitute for a food assigned to another main group, for example Textured Vegetable Protein as a meat substitute
- Policies:**
1. Both mature and immature pulses are classified in this group if the food item consists only of the seed and not the surrounding fruit (pod).
- Revisions:**
1. New codes have been assigned. The system is described in Discussion Note N003: Revised hierarchical food codes.
  2. The category **Underground pulses** has been added to



accommodate the sub-category of **Peanut**. This is more biologically accurate than classifying Peanuts as nuts and produces a better and clearer place in the classification for peanut products.

3. A combined category of **Seeds and kernels** has been created since the separation of seeds and kernels may be unclear and rather arbitrary.
4. In version 99/2, categories for unripe pulses which are consumed as vegetables have been added to the **Pod and seed vegetables** subgroup of the *Vegetables and vegetable products* main group. The corresponding categories remaining in the **Pulses** have had 'Dried' added to their name.

- Discussion:**
1. The main group name includes a type of seed (pulse), whole or part seeds (kernel) and a seed with casing (nut). A better name for the group might be **Seeds, including pulses, nuts and kernels, and their products**.
  2. The revised classification proposes a policy of placing product substitutes in the group of the substituted food on the basis of its product type and usage, not in the group of the source organism, for example **Soya milk** is assigned to the Milk group. See Discussion Note N004: Substitute and analogue food products.
  3. Some changes and additions have been to the pulses, but further changes may be necessary. For example, at present there is a category for **Kidney bean** but not a separate one for the distinctive **Red kidney bean**. Possibly there should be a single category at this level for all *Phaseolus vulgaris* with the different varieties distinguished at the food item level. It should also be possible to record if pulses are whole, split or skinless; this could be done using descriptors.
  4. Both the systematic and common nomenclature of pulses are confused and confusing. For example, many *Phaseolus* species have alternative names based on the *Vigna* genus. Common terms such as **Split pea** may refer to peas or lentils. Any additions, corrections or comments are welcome.
  5. Carob 'seed' consists of the seeds and pod of the Carob tree which contain a sweet pulp rich in sugars and gums. Should this be categorised as a pulse, a seed, a fruit or a fruiting vegetable?
  6. Should there be a category for **Lupin(e)s** (Sweet lupins) and if so where should it be placed in the classification?

## Main Group 7: Pulses, seeds, kernels, nuts and products

## Group 7 policy

<b>Sub-groups</b>	<b>7.10:</b> <u>Pulses</u>	<b>7.60:</b> <u>Pulse products</u>
	<b>7.20:</b> <u>Underground pulses</u>	<b>7.70:</b> <u>Nut and seed products</u>
	<b>7.30:</b> <u>Seeds and kernels</u>	

**7.40: Nuts**

<b>Code and category</b>		<b>Scientific name</b>	<b>Synonym or simil product</b>
<b>7. Pulses, seeds, kernels, nuts and products</b>			
<b>7.10 Pulses</b>			
<b>7.10.10</b>	Dried pea	<i>Pisum sativum</i>	Inc. Whole dried p pea
<b>7.10.15</b>	Chick pea	<i>Cicer arietinum</i>	(whole or split) Be gram, Garbanzo, C
<b>7.10.18</b>	Pigeon pea	<i>Cajanus cajan</i>	
<b>7.10.20</b>	Dried broad bean	<i>Vicia faba</i>	
<b>7.10.25</b>	Lentil	<i>Lens esculenta</i>	Varieties: Green, O Yellow, Puy, India
<b>7.10.28</b>	Lablab bean	<i>Dolichos lablab</i>	Hyacinth bean
<b>7.10.30</b>	Common bean	<i>Phaseolus vulgaris</i>	<u>Common bean foo</u>
<b>7.10.34</b>	Dried lima bean	<i>Phaseolus lunatis</i>	Dried butter bean
<b>7.10.36</b>	Aduki bean	<i>Phaseolus angularis</i>	Adzuki bean
<b>7.10.38</b>	Mung bean	<i>Phaseolus aureus</i>	Green gram, Golde
<b>7.10.40</b>	Rice bean	<i>Phaseolus calcaratus</i>	
<b>7.10.42</b>	Urd bean	<i>Phaseolus mungo</i>	Black gram
<b>7.10.46</b>	Black eye bean	<i>Vigna unguiculata</i>	Blackeye pea, Chl Cowpea
<b>7.10.50</b>	Soya bean	<i>Glycine max</i>	Chinese black bean Manchurian bean,
<b>7.10.64</b>	Carob fruit	<i>Ceratonia siliqua</i>	Carob bean, Locus See also <u>Carob flav</u>
<b>7.10.68</b>	Lupin(e)s	<i>Lupinus spp</i>	
<b>7.20 Underground pulses</b>			
<b>7.20.10</b>	Peanut	<i>Arachis hypogea</i>	Groundnut, Monke
<b>7.30 Seeds and kernels</b>			
<b>7.30.10</b>	Linseed	<i>Linum usitatisimum</i>	Flaxseed
<b>7.30.12</b>	Sunflower seed	<i>Helianthus annus</i>	
<b>7.30.14</b>	Poppy seed	<i>Papaver somniferum</i>	
<b>7.30.16</b>	Cotton seed	<i>Gossypium spp.</i>	
<b>7.30.18</b>	Rape seed	<i>Brassica rapa var. silvestris</i>	

<b>7.30.20</b>	Beechnut seed	<i>Fagus sylvatica</i>	
<b>7.30.22</b>	Sesame seed	<i>Sesamus indicum</i>	
<b>7.30.24</b>	Safflower seed	<i>Carthamus tinctorius</i>	
<b>7.30.26</b>	Olive seed	<i>Olea europea</i>	
<b>7.30.28</b>	Acorn seed	<i>Quercus robur</i>	
<b>7.30.30</b>	Pumpkin seed	<i>Cucurbita pepo</i>	
<b>7.30.32</b>	Pine nut	<i>Pinus pinea</i>	
<b>7.30.34</b>	Apricot kernel	<i>Prunus armeniaca</i>	
<b>7.30.36</b>	Peach kernel	<i>Amygdalus persica</i>	
<b>7.40</b>	Nuts		
<b>7.40.10</b>	Walnut	<i>Juglans regia</i>	
<b>7.40.14</b>	Hazelnut	<i>Corylus avellana</i>	
<b>7.40.18</b>	Filbert	<i>Corylus maxima</i>	
<b>7.40.22</b>	Coconut	<i>Cocos nucifera</i>	Cokernut
<b>7.40.26</b>	Brazil nut	<i>Bertholletia excelsa</i>	Paranut, Cream nu
<b>7.40.30</b>	Hickory nut	<i>Carya illinoensis</i>	Pecan nut
<b>7.40.34</b>	Cashew nut	<i>Anacardium occidentale</i>	
<b>7.40.38</b>	Almond, sweet	<i>Prunus amygdalus dulcis</i>	
<b>7.40.42</b>	Almond, bitter	<i>Prunus amygdalus amara</i>	
<b>7.40.46</b>	Pistachio nut	<i>Pistacia vera</i>	
<b>7.40.50</b>	Sweet chestnut	<i>Castanea vulgaris</i>	
<b>7.60</b>	Pulse products		
<b>7.60.20</b>	Unfermented soya paste	<i>Glycine max</i>	Tofu
<b>7.60.25</b>	Fermented soya paste	<i>Glycine max</i>	Tempeh, Miso
<b>7.60.40</b>	Peanut butter	<i>Arachis hypogaea</i>	
<b>7.70</b>	Nut and seed products		
<b>7.70.10</b>	Coconut milk	<i>Cocos nucifera</i>	
<b>7.70.20</b>	Chestnut purée	<i>Castanea vulgaris</i>	
<b>7.70.30</b>	Tahini paste	<i>Sesamus indicum</i>	from Sesame seed



*Ian Unwin*

*Policy updated: 24 April 2000*  
*Classification updated: 21 April 2000*  
*Discussion updated: 15 April 1999*